

**Supplemental Figure 6: Calculation of genetic correlations.** An example of a trivariate model where observed traits (QT, TpTe and Th) are influenced by additove genetic factors (A1-A3) and unique envinromental factors (E1-E3). In this example,  $R_{A1A2}$  represents the genetic correlation between QT and TpTe,  $R_{A1A3}$  represents the genetic correlation between QT and Th, and  $R_{A2A3}$  represents the genetic correlation between TpTe and Th. The genetic correlation between QT and TpTe, for example, is calculated as follows:  $R_{A1A2}$  = covariance(A1, A2) /  $\sqrt{\text{(variance(A1) * variance(A2))}}$  and indicates to what extent the same genes are involved in the manifestation of both QT and TpTe.